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ABSTRACT

This book promotes an integrated curriculum to assist students in grades 6-9 in seeing the links between different subject areas and in a larger context, the direct relevance of what they are learning in school to their needs later in life. The book uses a problem-solving approach that is "technological" in nature: the book provides activities in which students are challenged to design, construct, and evaluate their solutions to problems. The book presents 24 Challenges in four core areas: Structures and Mechanisms; Movement; Forces; and Environment. The book also provides sections covering: How To Use Each Challenge; Blank Working Pages--for teachers and students to produce their own Challenges; Learning Outcomes; Assessment and Evaluation Strategies; Levels of Achievement, with a sample Student Performance Profile; and Questions To Ask at the Planning Stage. Each Challenge includes: theme; title; integration connections--desired learning outcomes; context for the situation; statement of the Challenge; possible materials and equipment; parameters--constraints for solving the Challenge; exploring ideas; choosing and building the solution; reflections; extensions; useful resources; integration connections--prerequisite knowledge in math, science, and technology; and Teacher Talk--for possible solutions, how science and mathematical concepts relate, or for teaching strategies. Lists of useful resources and Internet addresses, and sample suppliers are provided. (SWC)

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